WHAT IS CLAIMED IS:

1    1.   A method of operating a system to process image data
2    for storage and retrieval, the method comprising the steps
3    of:
4           analyzing said image data to be encoded to
5    determine, for each image represented by the image data, a
6    level of encoding complexity;
7           encoding said image data according to a first
8    encoding format to generate first encoded image data; and
9           storing with the first encoded image data
10   encoding complexity level information indicating at least
11   one determined level of encoding complexity associated with
12   the first encoded image data.


1    2.   The method of claim 1, further comprising the step of:
2           retrieving the first encoded image data and
3    encoding complexity level information from the storage
4    device;
5           decoding the first encoded image data to generate
6    decoded image data;
7           determining at least one encoding parameter to be
8    used to re-encode the decoded image data as a function of
9    the retrieved encoding complexity level information; and
10          re-encoding the generated decoded image data
11   using the encoding parameter determined as a function of
12   the retrieved encoding complexity level information.

1  3.   The method of claim 1, further comprising the steps
2  of:
3         performing an automated image content analysis
4  operation on at least one image represented by said image
5  data; and
6         storing, with the first encoded image data, image
7  content description information generated by performing
8  said content analysis operation.


1  4.   The method of claim 3, further comprising the steps
2  of:
3         receiving image content information from a user
4  of the system; and
5         storing, with the first encoded image data and
6  the image content description information generated by
7  performing said content analysis operation, the image
8  content description information received from the system
9  user.


1  5.   The method of claim 3 further comprising the steps of:
2         retrieving the first encoded image data and image
3  content description information from the storage device;
4         decoding the first encoded image data to generate
5  decoded image data;
6         determining at least one encoding parameter to be
7  used to re-encode the decoded image data as a function of
8  the retrieved image content description information; and
9         re-encoding the generated decoded image data
10  using the encoding parameter determined as a function of
11  the retrieved image content description information.

1 6. The method of claim 1, further comprising the step of:

2 selecting, based on the determined encoding

3 complexity level information, an image represented by the

4 first encoded image data, to be viewed after decoding.


1 7. The method of claim 6, further comprising the step of:

2 decoding the encoded image data representing the

3 selected image to generate decoded image data; and

4 displaying the decoded selected image on a

5 display device.


1 8. The method of claim 7, wherein said step of decoding

2 the encoded image data is performed as part of said

3 encoding step.


1 9. The method of claim 1, further comprising:

2 selecting the first encoding format from a

3 plurality of supported encoding formats, as a function of

4 the determined level of encoding complexity.


1 10. The method of claim 9, further comprising the step of:

2 receiving data storage limitation information;

3 and

4 wherein the step of selecting the first encoding

5 format is also performed as a function of the received data

6 storage limitation information.


1 11. The method of claim 1, further comprising the step of:

2 retrieving the first encoded image data and

3 encoding complexity level information; and

4        using the retrieved encoding complexity level

5  information to identify at least one data format suitable

6  for distributing an image represented by the first encoded

7  image data, the identified data format being different from

8  the first encoding format.

1  12.   The method of claim 11, further comprising the step

2  of:

3        presenting to a user of the system a plurality of

4  data formats suitable for distributing the image

5  represented by the first encoded image data, the identified

6  data format being one of said plurality of presented data

7  formats;

8        receiving from the user information selecting one

9  of the presented data formats for use in distributing the

10  image; and

11        converting at least a portion of the first

12  encoded image data from the first encoding format to the

13  user selected data format.

1  13.   The method of claim 1, wherein the step of analyzing

2  image data to be encoded to determine, for each image

3  represented by the image data, a level of encoding

4  complexity includes:

5        generating an activity measure for at least one

6  image represented by said image data.

1  14.   The method of claim 1, wherein the step of analyzing

2  image data to be encoded to determine, for each image

3  represented by the image data, a level of encoding

4  complexity includes:

5             generating a measure of the luminance variance

6 throughout at least one image represented by said image

7 data.

1    15.    The method of claim 1, wherein the step of analyzing

2 image data to be encoded to determine, for each image

3 represented by the image data, a level of encoding

4 complexity includes:

5             generating a measure of the chrominance variance

6 throughout at least one image represented by said image

7 data.

1    16.    The method of claim 1, wherein the step of analyzing

2 image data to be encoded to determine, for each image

3 represented by the image data, a level of encoding

4 complexity includes:

5             generating a measure of the motion between at

6 least two complete frames, each frame corresponding to a

7 different image.

1    17.    The method of claim 1, further comprising:

2             generating true motion vectors indicating motion

3 between a first image and a second image;

4             generating in accordance with the first encoding

5 format, as part of said step of encoding said image data, a

6 set of motion vectors indicating motion between said first

7 image and said second image, said set of motion vectors

8 including at least some motion vectors which are different

9 form said true motion vectors; and

10            storing the true motion vectors with the first

11   encoded image data which includes said set of motion

12   vectors.

1   18.   A method of operating a system to process image data

2   for storage and retrieval, the method comprising the steps

3   of:

4            performing an automated scene analysis operation

5   on said image data to be encoded to generate image content

6   information;

7            encoding said image data according to a first

8   encoding format to generate first encoded image data; and

9            storing the generated image content information

10   in a file with the first encoded image data.

1   19.   The method of claim 18, further comprising:

2            receiving additional image content information

3   from a user of the system;

4            storing the additional image content information

5   in said file with the first encoded image data;

6            retrieving from storage the stored first encoded

7   image data, said generated content information, and said

8   additional content information;

9            selecting a second encoding format to be used for

10   outputting images represented by said first encoded image

11   data as a function of at least one of said generated

12   content information and said additional content

13   information; and

14            re-encoding said first encoded image data to said

15   second encoding format to generate second encoded image

16   data.

1   20.  The method of claim 19, wherein the generated image

2   content information indicates the pictorial content of an

3   image.

1   21.  The method of claim 20, wherein the additional image

2   content information includes a description of the pictorial

3   content of at least one image.

1   22.  The method of claim 20, wherein the step of

2   re-encoding said first encoded image data includes:

3         decoding said first encoded image data to

4   generate decoded image data; and

5         re-encoding said first encoded image data using

6   at least one encoding parameter generated as a function of

7   said generated image content information.

1   23.  A system for processing image data for storage and

2   retrieval purposes, the system comprising:

3         a scene analysis module for performing scene

4   analysis on said image data to generate image content

5   information;

6         means for receiving additional image content

7   information from a user of the system;

8         an encoder for encoding said image data according

9   to a first encoding format to generate first encoded image

10  data; and

11        a storage device for storing the first encoded

12  image data, said generated image content information and

13  said additional image content information in a file.

1   24.  The system of claim 23, further comprising:

2           means for retrieving from storage the stored

3   first encoded image data, said generated content

4   information, and said additional content information;

5           means for selecting, as a function of at least

6   one of said generated content information and said

7   additional content information, a second encoding format to

8   be used for outputting images represented by said first

9   encoded image data; and

10          a second encoder for re-encoding said first

11  encoded image data to said second encoding format to

12  generate second encoded image data.


1   25.  A system for processing data including at least one of

2   image data and audio data, the system comprising:

3           an analysis module for analyzing data to be

4   encoded and to assign one of a plurality of encoding levels

5   of complexity to the data to be encoded;

6           an encoder for generating encoded data from said

7   data to be encoded;

8           a file wrapper module for incorporating an

9   encoding complexity level identifier indicating the

10  encoding complexity level assigned to said data to be

11  encoded and said encoded data into a single file; and

12          a data storage device for storing said single

13  file.


1   26.  The system of claim 25, wherein the encoded data is

2   encoded image data, the system further comprising:

3           a preview module coupled to said encoder and said

4   analysis module for displaying a subset of the images

5   represented by encoded data generated by said encoder, the

6   displayed images being selected for display as a function

7   of encoding complexity level information associated with

8   said encoded data.


1   27.  The system of claim 20, wherein the preview module

2   selects images represented by image data assigned a higher

3   than average encoding complexity level for display.